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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,437	08/23/2002	Petter Tuvnes	2002-0441 A	6972

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EXAMINER

ANDREWS, MELVYN J

ART UNIT PAPER NUMBER

1742

DATE MAILED: 09/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/089,437	Applicant(s) TUVNES ET AL.	
	Examiner Melvyn J. Andrews	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>32902</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over the publication Derwent Acc No. 1981-54812D in view of Schwer (US 4,447,265). The Derwent publication discloses a lime based flux for steel making produced by adding calcium nitrate to calcined lime during cooling which during steel making the nitrate decomposes to form, lime, O₂, and N₂ the gases help mix the slag (see Abstract) but does not explicitly disclose a method of foaming-steel making slags but Schwer discloses a composition for foaming slag in an electric arc steel-making process comprising a carbon source and a source of calcium oxide it would have been obvious to one of ordinary skill in the art at the time the invention was made to expect that the Derwent publication "lime-based flux" would cause the slag to foam because the "lime-based flux" is a source of calcium oxide.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Derwent Acc No. 1981-54812D in view of Schwer (US 4,447,265) as applied to claim 12 above, and further in view of Masucci (US 5,395,420). The Derwent publication and the Schwer patent do not disclose foaming a stainless steel slag but Masucci discloses a process for using foamed slag in the production of stainless steels comprising placing into the slag a charge comprising carbon or coke with limestone it would have been obvious to one of ordinary skill in the art at the time the invention was made that the Derwent

publication "lime-based flux" would be useful to cause the stainless steel slag to foam because the "lime-based flux" during steel making comprising nitrate would decompose forming gases to help mix the slag which is equivalent to foaming slag.

Claim 13 to 17 and 19 to 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derwent Acc No. 1981-54812D in view of Schwer (US 4,447,265) as applied to claim 12 above, or further in view of Masucci (US 5,395,420) as applied to claim 18 above, and further in view of Rossborough (US 5,358,550).

With respect to Claims 13 to 17 and 19 the Derwent publication, Schwer and Masucci do not disclose injecting calcium nitrate in slag but Rossborough discloses a method comprising injecting an agent such as calcium nitrate (col.2, line 34) with a carrier gas such as nitrogen (col.9, line 31) it would have been obvious to one of ordinary skill in the art at the time the invention was made to inject the lime-based flux disclosed by Derwent publication because slag is being treated in all cases.

With respect to Claims 20 to 24 the "ratio" of calcium nitrate to carbon is relevant only when calcium nitrate is not added alone to the slag, that is, the claims are not limited to a claimed ratio.

Response to Arguments

Applicant's arguments filed June 8, 2004 have been fully considered but they are not persuasive. Applicants argue that foaming of slag by adding calcium nitrate is not explicitly disclosed by Derwent-Acc-No:1981-54812D and Schwer but since calcium nitrate is added to create some gas to "help mix the slag" it would be expected that the gas mixed with the slag would cause the slag to foam. Furthermore it is well known that

calcium nitrate may be used as a foaming agent to form foamed glass as evidenced by Derwent-Acc-No: 1985-157654 and glass is a refractory material akin to slag.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvyn J. Andrews whose telephone number is (571)272-1239. The examiner can normally be reached on 8:00A.M. to 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V King can be reached on (571)272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mja
September 1, 2004


MELVYN ANDREWS
PRIMARY EXAMINER